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EXAMINER

KOCH, GEORGE R

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/841,380
Filing Date: April 24, 2001
Appellant(s): SEAYER ET AL.

MAILED
JUL 15 2004
GROUP 1700

David R. Cleveland
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/19/2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 33-59 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

6,503,325 B1	Hess	1-2003
4,847,110	Nakajima et al	7-1989
2,833,666	Neidich	5-1958

GB-1,278,099

Hall

6-1972

Booth, George L. "Evolution of Coating", Volume 1, December 1995 (From Applicant's IDS filed 9-10-2001).

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Hess.

Hess discloses an electrostatic spray head (Figure 3) that transmits a liquid coating. Hess also discloses that it is known to use transfer rollers as intermediaries in the transmission (column 6, lines 42-48). Such a transfer surface would be capable of being relatively conductive if used with an electrostatic spray head. Such a structure would be capable of transferring as claimed.

As to claim 34, such a transfer surface would circulate or rotate.

As to claim 35, the surface is called a roller, i.e., a drum.

Claims 33-35, 37, 38, 43, 51, 52, 54, and 56-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess and Nakajima et al (US Patent 4,847,110).

Hess discloses an electrostatic spray head (Figure 3) that transmits a liquid coating. Hess also discloses that it is known to use transfer rollers as intermediaries in the transmission (column 6, lines 42-48). Such a transfer surface would be capable of

being relatively conductive if used with an electrostatic spray head. Hess is silent as how to utilize the spray head with the transfer rollers.

Nakajima discloses a conductive transfer surface (item 20) which transfers a portion of the coating to a substrate (see figure 6, and structures 22 and 23), and an electrostatic spray head (item 21) that is applying the powder coating composition to the conductive transfer surface (see also column 11, lines 7-24). One in the art would appreciate that powder coatings and liquid coatings are very similar, and indeed, Hess does indicate so (column 6, lines 36-43). Thus, one would look to Nakajima to implement the structures disclosed but not organized in Hess, and Nakajima's organization allows for metering of the coating composition. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the structural organization as disclosed in Nakajima for the elements of Hess as such an organization would allow for transfer and metering of the coating spray.

Hess and Nakajima are considered capable of operating such that following startup of the apparatus, and one or more circulations of the conductive transfer surface, the target region has a continuous coating of the liquid coating composition before new applied drops land.

As to claims 34 and 35, Hess and Nakajima disclose that the transfer surface rotates (column 11, lines 24-32), and that the surface is a cylinder (i.e., a drum or roller).

As to claim 37, Nakajima as applied discloses that the transfer surface is grounded (column 11, lines 17-20).

As to claim 38, the electrostatic spray head of Hess and Nakajima is capable of producing a line of charged droplets.

As to claim 43, the relationship of rolls 20 and 24 is functionally a nip roll since the substrate passes between these two rollers.

As to claims 51, 52, 54, 56, and 57, Hess and Nakajima's apparatus is capable of acting on the substrates claimed. As to claim 51, Hess and Nakajima can use an insulative substrate, which further as to claim 52 can be made of plastic. As to claim 54, Hess and Nakajima can be used with a porous substrate. As to claim 56, Hess and Nakajima are capable of being used with a woven or unwoven web. As to claim 57, Hess and Nakajima are capable of being used with a substrate that is an electronic film, component, or precursor thereof.

As to claim 55, Hess and Nakajima are capable of using a liquid for coating wherein the liquid for coating does not substantially penetrate the porous substrate.

As to claim 58, Hess and Nakajima discloses that the conductive transfer surface is grounded and is capable of being used with coatings and substrates such that substantially none of the charges generated by the electrostatic spraying device are transferred to the substrate.

As to claim 59, the apparatus of Hess and Nakajima appears capable of transferring drops in the sizes claimed.

Claims 36, 42 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess and Nakajima as applied to claims 33-35 above, and further in view of Booth ("Evolution of Coating", from applicant's IDS, Paper #2, 9-10-2001).

As to claim 36, Nakajima does not disclose using a belt as the transfer surface.

Booth discloses using a belt and multiple transfer drums to transfer the coating liquid to the substrate (see page 37 to page 39, and Figures 40 and 41). Booth discloses that the steel belt is particularly well adapted to applying coatings to porous materials wherein a minimal "combining" pressure is needed (page 38, lines 7-10). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention with a desire to coat porous substrates to have added a belt for the transfer mechanism as suggested by Booth in the overall system of Nakajima in order to reduce damage to the substrate.

As to claims 42 and 53, Booth discloses the use of multiple transfer surfaces (such as in Figures 30, 31, 32, 33 and 34, see pages 30-33) to meter the coating. Booth discloses that such multiple transfer surfaces are useful for maintaining coating weight control and uniformity (see page 30, lines 12-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to used a plurality of circulating transfer surfaces wherein the coating is transferred from a first surface to a second transfer surface as disclosed in Booth in order to maintain coating weight control and uniformity.

Claims 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess and Nakajima as applied to claim 33 above, and further in view of Neidich (US Patent 2,833,666).

As to claim 38, Hess and Nakajima, while disclosing the use of a single electrostatic spray head to produce a line of charge droplets, does not disclose the alternative embodiment of a series of spray heads ganged or grouped together to apply the coating to the transfer substrate.

Neidich discloses using multiple applicator nozzles, which are not electrostatic spray nozzle applying to a transfer surface, but rather directly apply the coating to the moving substrate. One in the art would appreciate that the use of multiple applicator nozzles allows for the treatment of a wider substrate, thus improving the efficiency of the application operation, and would appreciate that such a multiple nozzle setup plus transfer roller as in Hess/Nakajima would allow for the coating of wider substrates. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized multiple applicator nozzles such as in Neidich in the overall apparatus of Nakajima in order to improve efficiency and improve production speed.

As to claim 39, Hess, Nakajima and Neidich as applied in claim 38 above are capable of applying one or more coating compositions to one or more lanes.

As to claim 40, Hess, Nakajima and Neidich as applied in claim 38 above are capable of applying a plurality of compositions to one lanes, by placing both compositions in the spray head.

As to claim 41, Hess, Nakajima and Neidich as applied in claim 38 above are capable of applying coating compositions to a plurality of lanes.

Claims 44-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess and Nakajima as applied to claim 33 above, and further in view of Hall (GB 1,278,099).

Hess and Nakajima do not disclose multiple pick and place devices.

Hall discloses multiple pick and place devices, and further discloses that a minimum of five rollers, sometimes two rollers, be used per side coated (column 1, lines 41-46). Hall discloses that such devices smooth the coating, thus improving the coating. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such rollers in order to improve the coating.

(11) Response to Argument

On pages 14-18 of the appeal brief, applicant's representative presents a number of arguments directed to the rejection of claims 33-35 under 35 USC 102(b).

Applicant's first argument, as recited in page 15 of the appeal brief, is to argue that Hess, in cited Figure 3 (plus embodiments cited in column 6, lines 42-48 which recite the addition of a transfer roller) does not show "a continuous coating of the liquid coating composition before the newly applied drops land". However, it must be kept clear that in claims 33-35, the applicant is claiming *an apparatus*, not a method, and the apparatus must merely be capable of performing this method.

In response to applicant's argument that does not show "a continuous coating of the liquid coating composition before the newly applied drops land", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Following this argument, applicant then argues that Hess shows in Figures 2 and 4 (it must be noted, however, that neither of these Figures is cited for the rejection) a steam blower which therefore must result in an apparatus without a target region having "a continuous coating of the liquid coating composition before newly applied drops land". The previously presented response to this argument still stands - that the steam blower is not utilized in the embodiment cited (Figure 3, with the additional alternative embodiment of a transfer wheel as recited in column 6), and that this embodiment is considered capable of performing the continuous coating that is intended to be used with the claimed apparatus.

In any event, it is useful to consider what would result if the steam blower were, indeed, required. Column 5, lines 33-45 of Hess disclose the operation of the steam blower. Especially critical is the intended operation of this steam blower (item 132), which is to "scrape off" an air boundary layer (136) from *the material web surface*

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(114a). Thus, it is immediately clear that the steam blower functions, not to prevent a target region with a continuous coating, but rather to perform a scraping of the material web. In addition, while Figures 2 and 4 show the steam blower scraping off immediately prior the target region, these figures show the embodiments lacking a transfer roller. Thus, when considering the impact of such a steam blower on a transfer roller embodiment, it must be noted that the steam blower is intended to perform functions *on the material web*, not the transfer roller. Therefore, there would be no impact created by the steam blower on any transfer roller functioning, and the steam blower would not be able to scrap anything off of the transfer roller, since it would be aimed at the material web, and thus the steam blower does not prevent the capability of “a continuous coating of the liquid coating composition” on the transfer roller.

On page 16, the applicant then advances another argument, namely that the transfer roller is not conductive. However, conductivity is an inherent property, defined by electric potential differences. Hess discloses that the sprayer is an electrostatic sprayer, i.e., a charged sprayer. Hess also discloses that the substrate is held at ground (see the ground symbol in Figure). Since a transfer roller as recited by Hess would acquire the charged spray and then conduct the spray towards the grounded substrate, i.e., web, the transfer roller is conductive.

Subsequent to this argument, on page 17, applicant then returns to the argument as to the steam blower concept (again, which is not the embodiment being relied upon for the rejection) invalidating the transfer roller being capable of having “a continuous coating of the liquid coating composition before newly applied drops land”. However, as

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shown above, the steam blower interacts with the *web*, and this scraping of the web would not affect a transfer roller, nor affect the capability to have “a continuous coating of the liquid coating composition”.

After that argument, in the middle of page 17, applicant then reiterates that Hess is silent as to the amount or portion of coating medium that is transferred. However, as stated above, this is an example of a method step, and the applicant is claiming an apparatus.

On page 18, applicant then argues that these arguments are not arguments as to intended use. However, this is not persuasive because the arguments do not rely upon actual structural differences. It is completely unclear as to what applicant means by the statement that they are relying on structural differences that will be observed “following startup of the apparatus and one or more circulations of the conductive transfer surface”, since examination of the claims of an apparatus can only rely upon the actual claimed structure, and it is not at all apparent what these “observed” yet unclaimed structural differences would be in the case of circulating transfer surface.

Furthermore, as to claim 34, such a transfer drum or roller would circulate in the direction of motion.

On pages 19-27 of the appeal brief, applicant’s representative presents a number of arguments directed to the rejection of claims 33-35, 37, 38, 43, 51, 52, 54, and 56-59 under 35 USC 103(a) as being unpatentable over Hess in view of Nakajima.

First, on pages 19, applicant argues that the statement in the Final Rejection that states that Hess indicates that powder coatings and liquid coatings are very similar. However, Hess discloses structures, which are applicable to either liquid or powder coatings (see column 6, lines 36-43). Therefore, with respect to the structures at discussion, the arts of powder and liquid coating are very similar, in the sense that they can both use electrostatic guns and both be used to apply to a moving web with a conductive transfer surface there-between. Therefore, when attempting to discern what structure to use for the transfer drum, Nakajima discloses a drum operates in an electrostatic environment and functions to meter, or control, the coating portions. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the structures organization as disclosed in Nakajima for the elements of Hess as such an organization would for transfer and metering of the coating spray.

Furthermore, with respect to claim 34 and 35, applicant argues on page 22 that Hess and Nakajima do not disclose the direction of motion of the substrate and the transfer surface circulating in the direction of motion. However, Nakajima as incorporated does discloses the rotation especially as to claim 34 (see cited Figure 6, especially the arrows of the drum and the web, and cited column 11), and therefore, Hess and Nakajima as incorporated do disclose the transfer surface moving in the direction of motion.

With respect to claims 37 and 58, applicant argues on pages 22-23 that Hess does not disclose a transfer roller that is grounded. This argument is spurious since the

rejection recites that *Nakajima* discloses that the transfer roller is grounded, and *Nakajima* has been incorporated to show interactions between the roller and the sprayer.

With respect to claim 38, applicant argues on page 23, that the sprayers of *Nakajima* and Hess are not capable of producing a line of charged droplets. However, the sprayers of *Nakajima* and Hess are capable of producing a line of charged droplets.

With respect to claim 43, applicant argues on pages 23-24, that *Nakajima* does not disclose a nip that forces the substrate against the conductive transfer surface. Applicant then goes on and describes a number of structural details (the spacing between rollers 20 and 24, the fact that the material is a powder, etc) which are neither required nor excluded by the limitations of the claims. Applicant further argues that *Nakajima* does not have a sufficient nip pressure. However, applicant's claims do not recite a nip pressure. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., i.e., a specified nip pressure) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to claims 51, 52, 54, 56 and 57, applicant argues on pages 24-25 that neither Hess nor *Nakajima* discloses the specific substrates being coated. However, these substrates are not considered part of the apparatus, but rather items to be worked upon. Support for this interpretation is drawn from claim 33, which recites

the structure of the apparatus as being the liquid coating composition, the circulating conductive transfer surface, and the electrostatic spray head, the intended operation of these elements allowing for the transfer of a liquid coating composition from the conductive transfer surface to the substrate. The substrate itself is never recited as an element of the apparatus, but rather as an intended work surface. Therefore, in response to applicant's argument that the references do not disclose this intended work surface, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

With respect to claim 55, applicant argues on pages 25-26 that Hess and Nakajima do not disclose the step of having the substrate coated without substantial penetration of the coating through the substrate. In response to applicant's argument that the references do not disclose this substantial penetration step, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See

In re Casey, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

With respect to claim 59, applicant argues on page 26 that the arguments to claim 33 apply, and that further that Hess does not recite the step of transfer “substantially void-free” coatings whose “average caliper is less than the average drop diameter”. In response to applicant's argument that the references do not disclose these void free and caliper sizing steps, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

On pages 28-30 of the appeal brief, applicant's representative presents a number of arguments directed to the rejection of claims 36, 42, and 53 under 35 USC 103(a) as being unpatentable over Hess and Nakajima, and further in view of Booth, *Evolution of Coating*.

With respect to claim 36, applicant argues on page 28 that the arguments to claim 33 apply. These arguments are addressed above.

With respect to claim 36, applicant argues on page 29 that Booth does not provide motivation for incorporation or replacement of the transfer surface of Hess and

Nakajima with the belt of Booth. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Booth suggests that a belt is useful when coating porous substrates (page 7, lines 7-10), and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a belt as disclosed in Booth in order to coat porous substrates.

With respect to claims 42 and 53, applicant argues on pages 29-30 that Booth does not provide motivation for incorporation or replacement of additional circulating conductive transfer surfaces (as in claim 42) or that the coating is transferred from the conductive transfer surface to a second transfer surface and thence to the substrate (as in claim 53). In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Booth suggests

that such multiple transfer surfaces are useful for maintaining coating weight control and uniformity (see page 30, lines 12-15) and therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a plurality of transfer surfaces wherein the coating is transferred from a first surface to a second transfer surface as disclosed in Booth in order to maintain coating weight control and uniformity.

Furthermore, the fact that the applicant argues that neither Hess and Nakajima have any motivation for including additional transfer surfaces is irrelevant, as Booth, the third reference, does have motivation for including additional transfer surfaces. Furthermore, the fact that including additional transfer surfaces substantially increases capital costs and decreases machine reliability (presumably by increasing the potential for a breakdown due to machine wear) is irrelevant. To one desiring control of the coating weight and uniformity, these trade-offs of increased capital cost and decreased reliability may be desirable and necessary, as Booth shows.

On pages 31-33 of the appeal brief, applicant's representative presents a number of arguments directed to the rejection of claims 38-41 under 35 USC 103(a) as being unpatentable over Hess and Nakajima, and further in view of Neidich (US Patent 2,833,666).

With respect to claims 38-41, applicant argues on pages 31-33 that there is no motivation for including an array or plurality of electrostatic spray heads that produce a line of charged droplets. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can

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only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is clear to one of ordinary skill in the art that additional spray nozzles would allow for the treatment of a wider substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized multiple applicator nozzles such as in Neidich in the overall apparatus of Hess and Nakajima in order to improve efficiency and improve production speed.

On pages 34-36 of the appeal brief, applicant's representative presents a number of arguments directed to the rejection of claims 44-50 under 35 USC 103(a) as being unpatentable over Hess and Nakajima, and further in view of Hall (GB 1,278,099).

With respect to claims 44-50, applicant argues on pages 34-36 that Hall does not suggest using at least 5 rollers per side, driven or undriven, merely that two rollers per side are used. However, Hall does suggest in difficult cases, up to 5 rollers per side may be needed. Hall also suggests delays in the rotation (see page 3, lines 12-18). Furthermore, Figure 2 of Hall shows In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so

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found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is clear to one of ordinary skill in the art at the time of the invention would appreciate that the additional rollers would improve smoothening, and therefore it would have been obvious to do so in order to improve the coating smoothness. Hall also suggests rollers, i.e., rolls, and discloses the difficult case of 5 rollers per side. Hess and Nakajima recite that the substrate is a moving web.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

George R. Koch III
Patent Examiner
Art Unit 1734

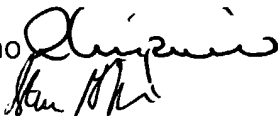


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July 8, 2004

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